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ABSTRACT

A long-standing dilemma in career and technical education (CTE) has been the best way to train new teachers. Recent literature reviews by Bruening et al. (2001) and Gray and Walter (2001) provide overviews of current CTE teacher education programs and CTE teacher licensing and preparation. Some of their findings include a trend toward more stringent academic preparation and higher grade-point averages for beginning teachers, as well as dwindling numbers of CTE teacher education programs and new programs for licensing persons with practical knowledge who lack academic credentials. In addition, although integrated curriculum has been widely promoted, few CTE teacher education programs provide more than minimal exposure to it, and most CTE teacher education programs provide less than ideal amounts of practical experience or knowledge base. Bruening et al. (2001)identify several challenges for CTE teacher educators: (1) the need to build capacity in CTE teacher education programs; (2) emphasis on quality and academic rigor; (3) the need to ensure preparation for curriculum integration; and (4) more innovative methods. Gray and Walter recommend CTE teacher education reforms including ensuring that teachers possess more pedagogical knowledge, subject-matter knowledge, and general knowledge; organizing teacher preparation programs around mission rather than titles; and developing alternative licensure models. (KC)

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Career and Technical Teacher Education Programs

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by Matthew J. Maurer

A long-standing dilemma in career and technical education (CTE) has been the best way to train new teachers. CTE encompasses such diverse fields, ranging from business to skilled machinists, so creating any type of standard licensure has been an uphill battle. Research in this area is diverse as well and tends to be very discipline specific. So what is a CTE practitioner to do with such an array of information? Two recent publications from the National Centers for Career and Technical Education may offer some assistance.

Bruening et al. (2001) created a new database of information on current CTE teacher education programs. Their goals were to collect data on all current programs and identify and describe the characteristics of each. They also attempted to identify curricular elements and categorize them into major factors critical to CTE teacher education reform. Of 385 identified institutions with CTE teacher certification programs, 164 institutions provided 227 responses.

Gray and Walter (2001) conducted a literature review dealing specifically with CTE teacher licensure and preparation. The main goal of their work was to create a public policy synthesis of literature in this area to spark new discussions and debate among practitioners and policymakers.

Although these two studies have different approaches—survey research and information synthesis, their findings provide data on key policy issues regarding CTE teacher preparation.

The External and Internal Policy Context

Gray and Walter found that general K-12 teacher preparation in 2000 was responding to two different issues: (1) the perceived need to improve the quality and rigor of teacher preparation as a means of improving schooling; and (2) the need to fill 1 million teacher vacancies in the next 10 years. Regarding the former, teacher education must deal with mandatory licensure examinations in a majority of states, increased emphasis on subject-matter expertise, minimum undergraduate grade point average (GPA) as a prerequisite for admission to and graduation from teacher licensure programs, and movement toward outcome-based assessment of teaching competence. At the same time, however, the projected teacher shortage is increasing support for nontraditional/alternative licensure, "a model that has been used for some CTE program areas for the last 85 years" (Gray and Walter 2001, p. 9).

Within CTE teacher education, there is concern about preparing CTE teacher candidates to pass state certification/licensing examinations, especially in pedagogy and subject knowledge; the need to prepare teachers to integrate academic and occupational education and supervise work-based learning; and the concern that the present system of teacher preparation is not meeting the demand for teachers as the number of institutions that provide CTE teacher education has declined and many of those that remain have been forced to consolidate their preparation programs. What do Bruening et al.'s data show about these issues?

Program and Certification Requirements

Academic criteria appear to be rising for CTE teacher candidates. According to Bruening et al., a minimum 2.5 cumulative GPA has remained the criterion for entry and exit in most CTE teacher preparation programs. However, compared to 10 years earlier, there is a definite push toward a 2.75 GPA for program entry. Only 6.6% of all programs now accept students with a GPA between 2.0 and 2.4, with 59.5% requiring 2.5-2.67 and 22.9% requiring higher than 2.7. Some states are requiring even higher numbers; for example, in Pennsylvania a 3.0 requirement is currently being phased in. Higher academic qualifications for CTE teacher candidates are a positive trend in light of increased state testing for licensure.

The bachelor's degree remains the predominant model for certification of CTE teachers in most programs. In health occupations and trade and industrial education, however, work experience/occupational competency is still an important certification route. Although it is important to have standard program requirements such as minimum GPA, many would argue that work experience in the trade or field is of primary importance to a successful CTE teacher. However, only about 10% of CTE teacher education programs overall required work experience in the CTE program area for entry into the teaching program and 25% required it for program completion. In light of the broader emphasis on subject-matter expertise for teachers, this may be a concern. "The domain of subject-matter knowledge in most CTE programs is occupational, not academic. This creates three specific challenges:

1. Teaching CTE occupational knowledge, if it is to be classroom based, requires unique and generally very expensive facilities.
2. The present rate of change in most occupations makes it is virtually impossible for CTE faculty to keep abreast of occupational developments and still fulfill the expectations for the role of faculty member.
3. Attracting individuals with both technical knowledge and academic credentials commensurate with faculty status is extremely difficult for a number of reasons including salary" (Gray and Walter 2001, p. 19).

Instructional Approaches

Bruening et al. found that integration strategies and techniques were the second most frequent credit-hour requirement in teacher education programs. However, integration is not frequently used in methods courses. Nearly 40% of all current programs still prefer the lecture-laboratory method of instruction., Gray and Walter also show that integrated curricula are sporadically used and preservice teachers receive little instruction in them (usually

fewer than three courses). In addition, the professional development school model of 50% or more of field-based instruction is used by less than half of Bruening et al.'s respondents on a regular basis. Less-traditional instructional approaches are needed in order to "increase the relevance and adaptability of the curriculum to meet the expectations of the workplace" (p. 50). One positive trend is that many programs surveyed are using distance education methods for course delivery, the use of which is projected to double in the next 3 years.

The Crisis of Teacher and Program Shortages

Gray and Walter point out that, as reforms have been implemented to permit more rigorous licensure requirements, the number of teachers in those programs has dropped dramatically. As Bruening et al. found, 432 institutions were identified 10 years ago as having vocational teacher education programs. In the present study, only 385 were located, an 11% decrease. This is a direct result of the decreasing demand for CTE teacher educators. With less demand for professionals in this field, the number of training programs has begun to dwindle. As Bruening et al. state, "for each new program there were about four institutions that phased out their programs. This finding should represent a major concern to the profession" (p. 49).

One possible way to deal with the teacher and program shortages has been the development of alternative programs for teacher licensure. As Gray and Walter explain, these programs are used to "permit individuals with subject matter expertise to become certified without completing a teacher education program" (p. 12). For those individuals looking for a change in career path after many years in the work force, the appeal of an easy "in" to the teaching profession is increasing. In addition, alternative routes have been shown in other studies to attract prospective teachers from minority groups.

Although this short-term solution to attracting teachers to CTE may be an effective one, Gray and Walter raise some important concerns. Not only does this form of licensure lead to quick hiring of individuals, but on a larger scale programs would be slowly and steadily replacing their faculty with teachers who have little or no teacher preparation. This would eventually cause a shift in the teacher population from those individuals with a strong academic base to those with a strong practical knowledge base. The conflicting needs of improving the quality of teacher preparation programs and filling the projected shortage of teachers are a thorny issue.

Conclusions and Implications

From their data, Bruening et al. identify several challenges for CTE teacher educators:

- The decline in the number of CTE teacher preparation programs highlights the critical need to build the capacity of teacher education programs to produce CTE teachers.
- Emphasis on quality and rigor in teacher education necessitates recruiting students who can meet higher academic standards.
- Conflicting data on the use of integration suggests a need to ensure that CTE teachers understand the integration of academic and technical skills.
- Because many programs still offer teacher education in a traditional manner, better ways to expand program delivery with the use of innovative methods are needed.

Some of Gray and Walter's recommendations for CTE teacher preparation reform provide ways to address these and other challenges:

- Teacher preparation programs should ensure that teachers possess a good background in pedagogical knowledge, subject-matter knowledge, and general knowledge.
- Programs should be organized around mission, not titles. Programs are often downsized or altered due to the specific area they cover. By focusing CTE programs on the mission of preparation and instruction, more fields can be encompassed into a larger program structure, providing unique instruction in multiple areas.
- Alternative licensure models should be developed. With the large shortage of teachers in CTE, programs need to attract more prospective teachers. With many people not willing to return to school for licensure, those already working yet willing to teach need access to licensure through an alternative means. It is expected that more people will turn to alternative means during the next decade, and if so, CTE could be the leader in promoting such programs.

"The CTE profession is in a transitional period and is still forming new models" (Bruening et al. 2001, p. 53). Bruening et al.'s findings show both positive directions and some concerns about CTE teacher preparation, and Gray and Walter's synthesis provides information to guide policy and practice.

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